

**U.S. Department of Energy**  
**Washington, D.C.**

**ORDER**

DOE O 460.1A

Approved: 10-2-96

Review: 10-2-98

**SUBJECT: PACKAGING AND TRANSPORTATION SAFETY**

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1. **OBJECTIVES.** To establish safety requirements for the proper packaging and transportation of Department of Energy (DOE) offsite shipments and onsite transfers of hazardous materials and for modal transport. (Offsite is any area within or outside a DOE site to which the public has free and uncontrolled access; onsite is any area within the boundaries of a DOE site or facility to which access is controlled.)
2. **CANCELLATION.** The Order listed below is canceled. Cancellation of an Order does not, by itself, modify or otherwise affect any contractual obligation to comply with such an Order. Canceled Orders that are incorporated by reference in a contract shall remain in effect until the contract is modified to delete the reference to the requirements in the canceled Orders.

DOE O 460.1 PACKAGING AND TRANSPORTATION SAFETY, dated 9-27-95

3. **APPLICABILITY.**
  - a. **DOE Elements.** Except for the exclusions in paragraph 3c, below, this Order applies to all DOE Elements.
  - b. **Contractors.** Except for the exclusions in paragraph 3c, below, the Contractor Requirements Document (CRD) (Attachment 1) sets forth requirements that are to be applied to the universe of contractors awarded contracts for managing and operating DOE facilities. Contractor compliance with the CRD will be required to the extent set forth in a contract. Contractors shall be directed to continue to comply with the requirements of Orders canceled by this Order until their contracts are modified to delete the reference to the requirements of the canceled Orders.
  - c. **Exclusions.**
    - (1) Activities that are regulated through a license by the Nuclear Regulatory Commission (NRC) or a State under an Agreement with the NRC, including activities certified by the NRC under section 1701 of the Atomic Energy Act. Requirements of this Order that overlap or duplicate the requirements of the NRC related to radiation protection, nuclear safety

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**DISTRIBUTION:**  
All Departmental Elements

**INITIATED BY:**  
Office of Environmental Management

(including quality assurance), and safeguards and security of nuclear material, do not apply to the Office of Civilian Radioactive Waste Management facilities.

- (2) Excluded from the requirements of this Order are: classified shipments; shipments of nuclear explosives, components, and special assemblies (see DOE 5610.12, PACKAGING AND OFFSITE TRANSPORTATION OF NUCLEAR COMPONENTS AND SPECIAL ASSEMBLIES ASSOCIATED WITH NUCLEAR EXPLOSIVE AND WEAPON SAFETY PROGRAM, 7-26-94); and facilities and activities of the Naval Nuclear Propulsion Program (see Executive Order 12344).

#### 4. REQUIREMENTS.

##### a. Offsite Hazardous Materials Packaging and Transportation Safety.

##### (1) Packaging and Transportation Safety.

- (a) Each package and shipment of hazardous materials shall be prepared in compliance with Hazardous Materials Regulations of the Department of Transportation (DOT) [Title 49 Code of Federal Regulations (CFR) Parts 106-199] and applicable tribal, State, and local regulations not otherwise preempted by DOT.
- (b) Offsite shipment of hazardous materials on DOE vehicles operated by DOE employees or employees of DOE contractors that are State agencies (not otherwise subject to DOT jurisdiction) shall follow the Hazardous Materials Regulations of DOT and applicable tribal, State, and local regulations not otherwise preempted by DOT.

##### (2) DOE Exemptions.

- (a) The Office of Environmental Management is responsible for this Order and may grant an exemption from its requirements provided that the proposed exemption:
  - 1 Is not prohibited by law; and
  - 2 Does not present an undue risk to public health and safety, the environment, or workers.
- (b) All exemption decisions shall set forth in writing the reasons for granting or denying the exemption and, if granted, the basis for determining that it does not present an undue risk as discussed above.

- (3) DOT Exemptions. Any hazardous materials package or shipment that is not prepared in compliance with paragraph 4a(1)(a), above, must be prepared in accord with a valid DOT Exemption. Application for a DOT Exemption shall be made through the Field Element to the Office of Environmental Management for processing to the DOT. Applications shall follow the directions in 49 CFR 107.103.
- (4) Special Requirements for Radioactive Material Packagings.
  - (a) Type A Radioactive Material Packagings. In addition to packagings authorized by the Hazardous Materials Regulations, each person who offers for transportation a Type A quantity of radioactive materials also may use a commercially procured Type A packaging, a package qualified as a Type A packaging per DOT Specification 7A (49 CFR 178) by an evaluation and testing program approved by the Headquarters Certifying Official, or a Type B packaging certified by the Headquarters Certifying Official or NRC. Packagings tested by and purchased from commercial sources do not require retesting by DOE contractors; however, the required documentation on design, testing, and use must be in the possession of the user.
  - (b) Type B or Fissile Radioactive Material Packagings. In addition to packagings authorized by the Hazardous Materials Regulations, each person who offers for transportation a Type B and/or fissile quantity of radioactive materials also may use a packaging certified by Headquarters Certifying Official or NRC. NRC-certified Type B and fissile packagings that have a current Certificate of Compliance may be used by DOE and DOE contractors only under the conditions specified in the Certificate, and only after DOE is registered with NRC as a user. Packagings that have a current DOE Certificate of Compliance issued by the Headquarters Certifying Official may be used by DOE and DOE contractors only under the conditions specified in the Certificate.
  - (c) Plutonium Packagings.
    - 1 Each person who offers plutonium for transportation in excess of 20 Curies per package shall use a packaging approved by the Headquarters Certifying Official or the NRC.

- 2      Each person who offers Type B quantities of plutonium for air transportation shall use a packaging approved by the Headquarters Certifying Official or the NRC.
- (5)      International Shipments. For domestic segments of transportation by air, vessel, rail, or highway, use of international packaging and transportation regulations in lieu of DOT regulations is permitted, when appropriate. In all instances, adherence to 49 CFR 171.11 is required for use of International Civil Aviation Organization's Technical Instructions and 49 CFR 171.12(b) for use of the International Maritime Dangerous Goods Code.
- b.      Onsite Safety Requirements. Onsite hazardous materials transfers shall comply with the Hazardous Materials Regulations, or the site- or facility-specific cognizant Operations or Field Office approved Transportation Safety Document that describes the methodology and compliance process to meet equivalent safety for any deviation from the Hazardous Materials Regulations. For multiple-tenant DOE sites, safety documents for several contractor organizations may be combined into a single document. DOE-operated sites (specifically, Morgantown and Pittsburgh Energy Technology Centers) may approve their own Transportation Safety Documents. Approved Transportation Safety Documents shall be in effect no later than 1 year from incorporation of this Order into the contractor's contracts.
- c.      Motor Carrier Safety Requirements.
- (1)      Each contractor who is a DOT-registered carrier and who operates a Government-owned or commercial motor vehicle offsite shall comply with Federal Motor Carrier Safety Regulations (49 CFR Parts 350-399) and applicable tribal, State, and local regulations not otherwise preempted by DOT.
- (2)      DOE employees and employees of DOE contractors that are State agencies (not otherwise subject to DOT jurisdiction) shall be deemed to have the same requirements as a DOT-registered carrier described in paragraph 4c(1), above. Exemptions may be authorized as in paragraph 4a(2) above.
- d.      Aircraft Safety Requirements. In addition to the Hazardous Materials Regulations for "Carriage by Aircraft," 49 CFR Part 175, all DOE transportation operations by aircraft shall follow the requirements of DOE O 440.2, AVIATION.
- e.      Pipeline Safety Requirements. All transport of hazardous materials by pipeline shall comply with 49 CFR Parts 190-193, 195, and 199.

5. RESPONSIBILITIES.

a. Office of Environmental Management.

- (1) Serve as the Headquarters Certifying Official responsible for administering the DOE program for certification of fissile and Type B packagings.
  - (a) The DOE program for certification of fissile and Type B packagings includes:
    - 1 Establishing packaging standards;
    - 2 Providing guidance for the preparation of Safety Analysis Reports for Packaging;
    - 3 Reviewing and approving packaging designs for fissile and Type B packages;
    - 4 Issuing DOE Certificates of Compliance to approved designs;
    - 5 Reviewing and recertifying certificates; and
    - 6 Curtailing and suspending the use of specific packages, if warranted.
  - (b) The Safety Analysis Report for Packaging must demonstrate that the package will satisfy the standards of 10 CFR 71 Subparts E and F, the quality assurance program of Subpart H, and any other standards that the Headquarters Certifying Official may determine applicable for granting a Certificate of Compliance.
- (2) Approve DOE contractor facilities for test and evaluation of DOT Specification 7A Type A package designs for radioactive materials.
- (3) Test and evaluate packagings designed by DOE facilities for use for Type A shipments to DOT Specification 7A Type A performance requirements, and document qualified packagings in the "Test and Evaluation Document for DOT 7A Type A Packaging."
- (4) Provide the point of coordination for DOE with DOT, NRC, Environmental Protection Agency, International Atomic Energy Agency, and other regulatory agencies concerning domestic and international transportation safety and packaging regulations, packaging certification, and modal safety regulations.

- (5) Review and process applications for DOT exemptions and exemption renewals, and review and grant DOE exemptions from the requirements of this Order.
  - (6) Review requests for DOT Certificates of Competent Authority for international transportation and NRC Certificates of Compliance and forward requests to the appropriate agency.
  - (7) Support the sharing of packaging and transportation safety successes, problems, and corrective actions with other DOE Elements and the field through the use of an effective lessons learned program.
  - (8) Provide technical assistance and training for packaging and transportation safety matters.
- b. Secretarial Officers. Review the Safety Analysis Reports for Packagings and the applications for DOE Certificate of Compliance for those facilities or activities for which the Secretarial Officer is responsible prior to submittal to the Office of Environmental Management.
- c. Heads of Operations Offices or Field Offices.
- (1) Implement the requirements of this Order and ensure that contractors under their purview fully implement and comply with the requirements of this Order.
  - (2) Review and approve contractor onsite Transportation Safety Documents.
  - (3) Review and process through the Office of Environmental Management: requests for DOE exemptions, DOT exemptions and renewals, and NRC packaging certificates.
  - (4) Review and process Safety Analysis Reports for Packagings through the Secretarial Officer responsible for the facilities or activities applying for a DOE Certificate of Compliance.
  - (5) Determine whether adequate protection can most effectively be achieved by continuing to operate under the terms of existing contracts requiring compliance with old Orders or by modifying the contract to incorporate the requirements of revised Orders. If the latter is elected, the Field Element shall ensure that the Contractor Requirements Document is incorporated into contracts by the contracting officer, either through a clause in the contract or the contract's statement of work/specification.

- (6) Support development of programs to share packaging and transportation safety successes and problems.
- (7) Obtain waivers from tribal, State, and local transportation laws, rules, and regulations, as needed to meet safety requirements. Copies of all such requests and waivers shall be provided to the responsible Secretarial Officer and the Office of Environmental Management.

6. CONTACT. Office of Environmental Management at (301) 903-5078 or (301) 903-4684.

BY ORDER OF THE SECRETARY OF ENERGY



ARCHER L. DURHAM  
Assistant Secretary for  
Human Resources and Administration

## **CONTRACTOR REQUIREMENTS DOCUMENT PACKAGING AND TRANSPORTATION SAFETY**

1. Contractors, who are subject to Department of Transportation (DOT) jurisdiction, shall prepare each package and shipment of hazardous materials for offsite shipment in compliance with the Hazardous Materials Regulations of the DOT [Title 49 Code of Federal Regulations (CFR) Parts 106-199] and the applicable tribal, State, and local regulations not otherwise preempted by DOT. Offsite shipment of hazardous materials on Department of Energy (DOE) vehicles operated by contractors that are State agencies (not otherwise subject to DOT jurisdiction) shall follow the Hazardous Materials Regulations of DOT and the applicable tribal, State, and local regulations not otherwise preempted by DOT.
2. Contractors, who are subject to DOT jurisdiction, shall prepare any hazardous materials package or shipment that is not in compliance with the Hazardous Materials Regulations in accordance with a valid DOT exemption. The contractor shall apply for a DOT exemption through the Field Element to the Assistant Secretary for Environment, Safety and Health for processing to DOT. Applications shall follow the directions in 49 CFR 107.103. Offsite shipments of hazardous materials prepared by contractors not subject to DOT jurisdiction, that are not prepared in accordance with the Hazardous Materials Regulations, shall be prepared in accordance with a valid DOE exemption.
3. For specific radioactive material packagings the following shall apply.
  - a. Type A Radioactive Material Packagings. In addition to packaging authorized by the Hazardous Materials Regulations, each person who offers for transportation a Type A quantity of radioactive materials also may use a commercially procured Type A packaging, a package qualified as a Type A packaging per DOT Specification 7A (49 CFR 178) by an evaluation and testing program approved by the Headquarters Certifying Official, or a Type B packaging certified by the Nuclear Regulatory Commission (NRC) or Headquarters Certifying Official. Packagings tested by and purchased from commercial sources do not require retesting by DOE contractors; however, the required documentation on design, testing, and use must be in the possession of the user.
  - b. Type B or Fissile Radioactive Material Packagings. In addition to packaging authorized by the Hazardous Materials Regulations, each person who offers for transportation a Type B and/or fissile quantity of radioactive materials also may use a packaging certified by Headquarters Certifying Official or NRC. NRC-certified Type B and fissile packagings that have a current Certificate of Compliance may be used by contractors only under the conditions specified in the Certificate, and only after DOE is registered with NRC as a user. Packagings that have a current DOE Certificate of Compliance issued by the Headquarters Certifying Official may be used by contractors only under the conditions specified in the Certificate.



- c. Plutonium Packagings.
- (1) Each person who offers plutonium for transportation in excess of 20 Curies per package shall use a packaging approved by the Headquarters Certifying Official or the NRC.
  - (2) Each person who offers Type B quantities of plutonium for air transportation shall use a packaging approved by the Headquarters Certifying Official or the NRC.
4. The contractor may follow international packaging and transportation regulations for domestic segments of transportation by air, vessel, rail, or highway of shipments in international traffic in lieu of the DOT regulations, as appropriate. In all instances, adherence to 49 CFR 171.11 is required for use of International Civil Aviation Organization's Technical Instructions and 49 CFR 171.12(b) for use of the International Maritime Dangerous Goods Code.
  5. The contractor shall comply with the Hazardous Materials Regulations for onsite hazardous materials transfers or comply with an approved site- or facility-specific Transportation Safety Document that describes the methodology and compliance process to meet equivalent safety for any deviation from the Hazardous Materials Regulations. For multiple-tenant DOE sites, safety documents for several contractor organizations may be combined into a single document. Approval shall be by the cognizant Operations Office or Field Office. Approved Transportation Safety Documents shall be in effect no later than 1 year from date of incorporation of this Contractor Requirements Document into the contractor's contract.
  6. The contractor shall comply with the Federal Motor Carrier Safety Regulations (49 CFR Parts 350-399) and applicable tribal, State, and local regulations not otherwise preempted by DOT when registered as a DOT-carrier and operating offsite a Government-owned or commercial motor vehicle. Employees of DOE contractors that are State agencies (not otherwise subject to DOT jurisdiction) shall be deemed to have the same requirements as a DOT-registered carrier or may seek relief from these requirements by means of a DOE exemption.
  7. The contractor shall comply with 49 CFR Part 175, Carriage by Aircraft, for all hazardous materials transport by air and with the requirements of applicable DOE Orders for operational safety.
  8. The contractor shall comply with 49 CFR Parts 190-193, 195, and 199 for all transport of hazardous materials by pipeline.
  9. The contractor shall implement and/or expand lessons learned programs to include sharing transportation and packaging safety successes and problems throughout the site and with other DOE contractors.